

Most state forest land is located away from population centers. Because the public is not generally allowed near noisy operations, the impact is normally small to negligible. At most, the public could find noise level increases annoying, but the noise level would not be loud enough to interfere with normal daytime activities or cause physiological effects.

8.5.2 Light and Glare

Timber harvesting activities expose land surface to increased sunlight. The size of clearcuts and their distribution in a drainage area can impact light and glare. In areas where snow may accumulate, clearcuts will be brighter and more visible. This increased reflective light will not harm the eye but may reduce the aesthetic value of the view and affect the outdoor experience of hikers and others.

8.5.3 Public Services

8.5.3.1 Police and Fire

When vandalism occurs on state forest land, the department typically calls the local police or sheriff. The incidence of crime and the imposition on local law enforcement agencies is slight and will not likely change under any timber harvest option.

The policy on public access (see Policy No. 25) will give the department more discretion to close or restrict roads to prevent vandalism and protect public resources. To the extent that this policy is adopted and aggressively enforced, it is likely to reduce the need for additional police and law enforcement services.

The plan will not have a significant impact on local fire services.

8.5.3.2 Schools

Any reductions in timber harvesting may adversely impact school trust revenues and, ultimately, schools. For a more complete discussion, see the economics section below.

8.5.3.3 Other Government Services

The department's wildfire control program impacts the department of Labor and Industries, which licenses department personnel to use explosives for wildfire fireline construction and road and facility development. This impact is minor.

8.5.3.4 Mitigation Measures (Public Services)

The department expects to have little impact on public services, but it will cooperate with agencies that provide these services in the event that mitigation is necessary.

8.5.3.5 Unavoidable Adverse Impacts (Public Services)

Law enforcement agencies will continue to be impacted by timber harvesting activities to some degree. Some vandalism of logging equipment will probably continue.

Timber harvesting may lessen the desirability of recreational areas, which could impact other recreational agencies to some degree.

Furthermore, the department's policy of allowing public access for recreation on state forest lands will also likely lead to some problems, such as vandalism and damage to natural resources, which in turn will impact law enforcement and other related public services.

An increase in maintenance of state highways and county roads used by timber harvesting traffic is also unavoidable. In most cases, this impact will be minor. Short of a major change in timber hauling, use of log trucks will continue. The only adverse impact is additional vehicles. Regardless of road design and safety features, the department's relatively unimproved road system for timber harvesting will continue to present some traffic hazards.

8.5.4 **Transportation**

8.5.4.1 Roads and Vehicles

Timber harvesting is a primary purpose of the department's roads system. The department maintains a 12,000-mile road system on state forest land, and the largest single source of traffic was associated with the department's forest land program.

County and state roads are impacted to varying degrees by logging trucks and other traffic from timber harvesting on department-managed lands. In western Clallam and Jefferson Counties, the impact on state roads has been considerable. Counties and the Washington State Department of Transportation maintain their road systems with monies from gasoline taxes, plus property tax revenues in the case of county roads.

Additional financial assistance for counties allows the department to advance funds to improve roads for state timber hauling. The counties repay the department from the counties' share of timber sales receipts.

When a road is no longer needed, the department puts these roads to bed by removing culverts, etc., in accordance with state Forest Practices Act regulations. The regulations address the condition of "orphan roads," as they are known. The department puts approximately 50-60 miles of road to bed each year.

8.5.4.2 Waterborne, Rail and Air Traffic

The plan will not have a significant adverse impact on waterborne, rail or air traffic.

8.5.4.3 Mitigation Measures (Transportation)

The department attempts to reduce traffic hazards by building roads to the standard to handle anticipated peak traffic, including traffic from sources other than logging. As road use increases and improvements are made, junctions with public roads are also improved for safer travel.

Existing roads are now improved as a part of the department's road development program, but only as traffic conditions warrant. Similarly, public roads are improved when increased traffic calls for the work.

The department requires logging companies who harvest timber from state forest land to meet state Department of Transportation weight requirements.

In addition, the department regularly meets with local government officials and engineers to discuss impacts of road system requirements.

8.5.4.4 Unavoidable Adverse Impacts (Transportation)

Some traffic is unavoidable as long as the department harvests timber from state forest land and generates income for the trusts. Substantial amounts of traffic will create some noise and wear and tear on roads managed by the department and others.

Some weight and safety violations may occur, despite contractual provisions that require logging companies to obey state Department of Transportation rules and regulations.

8.5.5 Human Health and Population

The Forest Resource Plan will not have a significant adverse impact on general human health or population. Because of increased exposure to hazards during harvesting operations, forest workers are likely to be the group that is most affected by the plan and its implementation.

Accidents and injury, unfortunately, are always possible on any timber harvesting job. The department itself does not harvest timber but puts the timber out to bid; private companies then harvest the timber and assume responsibility for the safety of their employees.

The department and its agents are governed by the state Occupation Safety and Health Administration regulations, which protect workers in the state. In addition, the department has an aggressive safety and health program for its personnel.

The department has taken steps to ensure that its herbicide program will not affect human health or population. In May 1986, the department commissioned a report, "Worst Case Analysis Study on Forest Plantation Herbicide Use," prepared by K.S. Crump and Company, Inc. In 1987, as a response to the worst case analysis, the department prepared a document, "Herbicide Use on State Forest Lands Public Response Summary and Proposed Management Approach." In addition, the department relies on another report, "Biological and Physical Effects of Forest Vegetation Management," dated September 1984, by Newton and Dost, in its evaluation of herbicides.

Noise is another potential health hazard associated with timber harvesting. The use of safety equipment such as ear plugs will mitigate the potential for harm.

8.5.6 Recreation and Aesthetics

8.5.6.1 Recreational Facilities

Timber harvest activities that are adjacent to parks or other recreational facilities can have an adverse impact. Visual impact following harvest, or the logging itself, can reduce the value of the recreational experience. Noise and dust from operations can reduce the attractiveness of nearby sites until harvesting is completed.

Economical and environmental assessments of new potential recreation sites on state forest land are developed by the department's Land and Water Conservation Division and are not addressed by the Forest Resource Plan.

The Forest Resource Plan contains a proposed recreation policy which calls for the department to continue complying with the Statewide Comprehensive Outdoor Recreation Program and to cooperate with the Interagency Committee for Outdoor Recreation (IAC). Environmental impacts of proposed recreation sites will be considered by the division at the time an application is made for IAC funding.

The department's access policy allows the public access to most state forest lands for recreation, so long as this use is compatible with trust interests and the protection of natural resources.

8.5.6.2 Aesthetics

Clearcutting is expected to be the major cutting method in Western Washington. Shapes and patterns of clearcuts are usually unnatural. These impacts are usually greatest when clearcuts are viewed as middleground or background.

Further visual impacts from clearcutting are caused from the different methods and practices used. Some logging systems, for example, cause more ground disturbance than others, exposing more soil, and creating more slash. These impacts are usually greatest when seen up close.

Probable impacts from clearcutting will be at their worst when:

- 1) there is little variety in land forms and vegetative patterns;
- 2) no dominant landscape feature is present;
- 3) soils are nonfertile or have little regeneration potential;
- 4) soils are light-colored;
- 5) there is a homogeneous cover of dark-green vegetation;
- 6) the unit's shapes, patterns, scale and size do not reflect the natural characteristic of the landscape; and
- 7) the unit is on steep topography in the middleground and background zones, and frequently viewed from recreational travel routes and use areas, such as federal and state scenic highways.

The Eastern Washington harvest is expected to be predominantly partial cuts. Their basic visual impacts are slight during early entry stages. These impacts consist of partial openings of the forest. The final removal stage of a partial cut will cause impacts similar to clearcutting. However, if any understory vegetation has established itself and can be protected during yarding of the trees, the impact will be considerably less than with clearcutting. Impacts resulting from partial cutting will be at their worst when:

- 1) topography is steep;
- 2) there is little vegetative variety or pattern;
- 3) soils have low productivity;
- 4) the unit's shapes, patterns, scale and size are not similar to the natural features; and
- 5) the final removal is made without significant protected understory.

8.5.6.3 Mitigation Measures (Recreation and Aesthetics)

The department will consider the environmental impact of specific recreation sites when these facilities are proposed. Mitigation measures will be developed at that time.

To minimize the visual impact of clearcut areas, the department has proposed a "green-up" policy (Policy No. 32) which requires a four-foot high "buffer" of trees next to proposed clearcut areas.

Other mitigating measures may include disposing completely the debris at the site, cutting stumps low, replacing stumps from windfalls into their natural positions, placing roads behind topographical features, using long yarding systems to reduce the amount of visible road, and reforestation and seeding immediately in the cut-over area or on visible roadside cuts and fills.

In addition, the department is currently working to acquire certain scenic lands along the Interstate 90 corridor in Western Washington. This project will protect lands in the corridor of this heavily-traveled highway.

8.5.6.4 Unavoidable Adverse Impacts (Recreation and Aesthetics)

Intense timber harvesting near recreational facilities can cause temporary disruptions in the form of dust, noise, and poor road conditions. These activities may adversely alter the appearance of forested areas and decrease their recreational value and that of nearby areas. In addition, some department recreation sites or trails may be moved or closed until the activity is concluded.

Aesthetics may be adversely impacted by timber harvesting, particularly clearcutting. The aesthetic impact depends a great deal on the size of clearcuts, their design and layout and the distance to the viewer.

8.5.7 **Economics**

8.5.7.1 Trust Beneficiaries

The economic aspects of the Forest Resource Plan will primarily affect the trust beneficiaries, which include schools, counties and other public institutions. (See **Table 1** at page 3 for a list of the trusts and the number of acres of state forest land in each trust.) In fiscal year 1990, the department generated \$189 million for the various trusts.

It is not possible to predict future revenues because of the uncertainty in timber markets. Implementation of the federal legislation restricting log exports from state forest land further complicates the situation and makes economic trends even harder to predict. These constraints may significantly reduce the amount of revenue generated for the trusts in the 1990s.

In addition, the impact of the federal government's decision to list the Northern Spotted Owl as a threatened species has had a large impact on state forest land. The department has restricted harvest on about 63,250 acres until a final decision has been made regarding the habitat needed to support the spotted owl population. This number may change, and it is not clear how long the restrictions will last.

All these factors make economic projections all the more uncertain. As a result, the department has not prepared detailed estimates of trust income in the 1990s.

8.5.7.2 Timber-Dependent Communities

The federal government's decision to list the Northern Spotted Owl as a threatened species has severely impacted some small towns and rural areas of the state that are heavily dependent on timber for employment income.

Although the department lands are only a component of the total acreage that has been effected by these restrictions, the department has deferred a substantial amount of acres to provide habitat for the owl. Because the department does not know how long these deferrals will be in effect, it cannot assess the long-term economic impact on these communities.

8.5.7.3 Mitigation (Economics)

The department's new policy on ownership groups (Policy No. 6) will help mitigate the "rollercoaster" effects of timber harvesting on those Western Washington counties that contain Forest Board Transfer lands. In the past, the department consolidated these counties into one ownership group and established one sustainable, even-flow harvest. The amount of timber harvesting in one county could therefore increase dramatically during a short period of time and then suddenly decrease (though the amount of harvesting in the consolidated group stayed at approximately the same level). The department now intends to calculate a sustainable harvest level for each of the 16 counties that have Forest Board transfer lands. This policy will help provide stability and certainty for those counties.

In addition, the department will now calculate its sustainable, even-flow harvest levels for Federal Grant and Forest Board Purchase lands on five Western Washington regions, rather than one consolidated Western Washington block. This also should help provide stability and continuity for local counties. (See Policy No. 6, Western Washington Ownership Groups).

8.5.7.4 Unavoidable Adverse Impacts (Economics)

The department cannot directly control many of the regional and national factors, such as log export restrictions and deferrals for the Northern Spotted Owl, which will affect economics of state forest land management in the 1990s.

As a result, some of these potentially adverse consequences are beyond the department's control and the scope of this analysis. Major fluctuations and/or decreases in timber prices and increased timber deferrals for wildlife habitat will likely have a significant adverse impact.

8.5.8 Historical and Archaeological Sites

8.5.8.1 Cultural Resources

Timber harvesting and related activities can inadvertently damage cultural resources. The department's current procedure is to survey areas and obtain as much information as possible from tribes and other interested parties before a timber sale is executed. The department intends to continue this procedure and work closely with tribes to identify historical and archaeological sites.

8.5.8.2 Mitigation Measures (Historical)

The department's preferred policy in the Forest Resource Plan (see Policy No. 24), which calls for the establishment of an historical and archaeological program, should reduce the possibility that timber harvest or other department activities will destroy or damage historical or archeological sites.

Specific mitigating measures will be determined by the nature and significance of resources involved, the laws protecting such resources and the department's legal responsibilities to the trusts. The department will coordinate with other state offices to identify cultural resources at the earliest possible planning stage. When resources are identified within the area of a project's potential environmental impact, the department will analyze its effect on the resources and will take appropriate measures taken to ensure that no damage occurs.

Mitigating measures may include the modification of practices, physical protection of the resource, data recovery or similar measures. Where appropriate, professional consultation will be obtained.

8.5.8.3 Unavoidable Adverse Impacts (Historical)

Harvesting activities may sometimes inadvertently destroy, damage or disturb unknown archaeological resources. Implementation of the department's preferred policy and the mitigation measures described above should help ensure that these events only occur rarely, if at all.